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In The

Supreme Court of the United States

PUBLIC LANDS COUNCIL, *et al.*,

Petitioners,

v.

BRUCE BABBITT,
UNITED STATES DEPARTMENT OF THE INTERIOR, SECRETARY, *et al.*,

Respondents.

On Writ Of Certiorari To The United States Court Of Appeals For The Tenth Circuit

BRIEF OF *AMICUS CURIAE* OF THE ASSOCIATION OF RANGELAND CONSULTANTS IN SUPPORT OF NEITHER PARTY BUT IN SUPPORT OF REVERSAL

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INTEREST OF *AMICUS*[1]

The Association of Rangeland Consultants (ARC) is a professional organization whose purpose is to promote the understanding and use of sound range management that is scientifically based and technically sound among all users of the public land. Members are predominantly range management experts who provide consulting services concerning research, monitoring, evaluation of vegetation conditions and trends, and grazing management on the public land within the Western United States.

Most members of the ARC have graduate degrees in range management or closely related fields. They typically have extensive experience that include one or more of the following disciplines: research scientists, University teaching or extension, Federal and State Land Management Agencies, and consulting to private and governmental entities. Publications by members include a long list of scientific and commercial articles and reports, including some of the seminal scientific journal articles regarding range condition and rangeland monitoring. Most members actively perform rangeland monitoring, data collection and analysis, and work cooperatively with Federal and State Land Management Agencies and livestock operators dependent upon public land use.

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[1] In accordance with Rule 37.3(a) of the Supreme Court, *Amicus* have obtained the consent of the parties to the filing of this brief, and letters of consent have been filed with the Clerk. Also, in accordance with Rule 37.6 of the Supreme Court, *Amicus* state that counsel for a party did not author this brief in whole or in part and that no persons or entities other than *Amicus*, its members, and its counsel made a monetary contribution to the preparation and submission of the brief.

Although ARC did not itself comment on the grazing regulations that are the subject of the pending case, various members of ARC submitted detailed comments during the rule-making process. These and related comments responded to the stated goal of the intended regulations. A stated goal was to: facilitate "ecosystem management", accelerate restoration and improvement of public rangelands, and "streamline" BLM and Forest Service administration. See 58 Fed. Reg. 43208-43209 (8/13/93). The Department of Interior expected to achieve this goal through certain measures, which included: development of BLM standards and guidelines for rangeland ecosystems, and the change of BLM and Forest Service grazing administration regulations. 58 Fed. Reg. 43208-43209 (8/13/93). All of these measures were justified principally on the grounds that improving the ecological condition upon the public land could not be achieved without implementation of these measures.

As members of ARC pointed out during the rule-making process, these stated measures were not necessary. The ecological condition (range condition) of the public land was already greatly improved and continuing to improve under the previous regulations. The previous regulations gave the Department of Interior adequate authority to manage livestock grazing on the public land.

ARC takes no position for or against any party in this case. However, ARC does take the position that ecological condition on the public land in the Western United States is the best it has been in this century, that ecological condition of the public land has improved greatly under the grazing regulations in effect prior to 1995, and that the changes in grazing regulations implemented in 1995

by the Department of Interior, including the ones in contention in this case, are not necessary to achieve the goals for rangeland management established by the Taylor Grazing Act, 43 U.S.C. §§ 315 to 315m; Federal Land Policy and Management Act, 43 U.S.C. §§ 1701 to 1784; Endangered Species Act, 16 U.S.C. §§ 1531 to 1544; and other public land legislation passed by the Congress.

SUMMARY OF ARGUMENT

The range condition of public land in the Western United States, and the sustainability of management applied to these lands, have become a "battle-cry" for change. In the past few years and particularly during the rule-making process involved herein, those who advocate change have made increasing efforts to claim a downward trend in the range condition of the public land. However, the reality is that the range condition of the public land has improved in the absence of the regulations being contested in this case. The evidence collected and assimilated by the Department of Interior itself and by the academic community demonstrates that range condition has improved over time. Therefore, it is without merit for any party or any other *amici* to suggest that the regulations being contested in this case are needed to sustain and improve the range condition on the public land in the Western United States.

ARGUMENT

I. HISTORICAL PERSPECTIVE OF LIVESTOCK GRAZING UPON THE PUBLIC LAND WITHIN THE WESTERN UNITED STATES.

Livestock was introduced to the western rangelands in the 1860s, although in some areas like Texas, New Mexico, Arizona, and California, livestock grazing began much earlier. Prior to the introduction of livestock, rangelands were grazed by bison, antelope, elk, deer, and other wildlife. Wildlife grazing pressure ranged from fairly heavy in the Great Plains to light in some of the Intermountain areas where lack of water and frequent drought constrained populations of large grazing animals. When livestock were first introduced to the western rangelands, land was open to anyone who wished to use it. As land was homesteaded and passed into private ownership, control over use of the rangeland was gradually established, especially east of the Rocky Mountains. In the "public land states" of the Western United States, most of the land was not suited for homesteading because, due to the arid climate, it was impossible to farm it or make a living from livestock from the small acreage available under the various Homestead Acts. Therefore, only small amounts of land, usually where water was available, passed into private hands. The rest was grazed as "open range" by anyone who could control it. This situation, plus a general lack of understanding of the productivity of western rangelands, led to widespread overstocking by cattle and sheep in the last few decades of the nineteenth century continuing into the twentieth century. In addition, there were large bands of wild horses and burros

grazing public rangelands. This "tragedy of the commons" led to decreased cover of desirable vegetation, increased cover of undesirable vegetation, and accelerated soil erosion. These problems were compounded by the effects of severe droughts and floods occurring around the turn of the century, as well as the 1930s drought and "dust bowl". Wildlife populations also declined during this same period due to market hunting and lack of control of hunting.

The situation over the next few decades improved slowly. The adoption by the United States Forest Service (USFS) of a grazing permit system at the turn of the century, and the passage of the Taylor Grazing Act in 1934, established grazing entitlements of individual livestock operators dependant on public land use. These actions reduced competition among livestock operators, eliminated the need to stock rangeland heavily to maintain rights of occupancy, and banned transient or speculative livestock operators from public land. In addition, research and experience were accumulated that laid the groundwork for development of range management as a college major and a profession. The formation of the Cooperative Extension Service in the Universities and the creation of the Soil Conservation Service (SCS) (now Natural Resource Conservation Service) made technical information on rangeland management available to ranchers. All of these efforts resulted in some decrease of stocking rates and implementation of improved management in the 1920s through the 1930s.

After World War II, major strides were made in improving management on both public and private rangelands. Millions of acres were treated to reduce

undesirable shrubs, control soil erosion, and reseed deteriorated rangelands and abandoned croplands. Major efforts in fence construction and water developments made possible, for the first time in many areas, to improve distribution of livestock grazing and to adopt grazing management systems that provided rest to plants during critical growing periods. Livestock numbers were generally reduced on the public rangelands as a result of improved methods of range assessment and the development of better understanding of grazing effects. The profession of range management was fully developed in the Universities and research on the ecology and management of rangelands was well supported. The science and practice of wildlife management also flourished in this period, and this knowledge, along with improving habitat resulting from improved range management, resulted in increases of wildlife.

In the 1970s, Federal, State, and private land managers began to focus more on riparian areas as the importance of these areas for wildlife and water quality considerations became more apparent. Prior to that time, riparian areas were often considered "sacrifice areas" where livestock would concentrate regardless of reduced livestock numbers. The emphasis in range management was oriented more to protecting the upland watersheds than the streams themselves. Since the 1970s, riparian areas have received increased interest in both management and research, and much has been learned about managing grazing to achieve riparian objectives.

II. RANGE CONDITION UPON THE PUBLIC LAND WITHIN THE WESTERN UNITED STATES HAS IMPROVED OVER TIME IN THE FACE OF LIVESTOCK GRAZING.

Range management professionals almost unanimously agree that there has been general improvement in the level of management applied to rangelands and that the general range condition of rangelands has improved greatly since the early days of this century, and particularly since 1950. If that is the case, why does there remain so much controversy regarding the range condition and trend of public land? The following discussion will answer that question and draw conclusions about present range condition and trend.

A. Early Assessments of the Public Land did Not Involve Range Condition but Intended to Determine the Grazing Capacity of the Public Land.

The USFS began to develop a method for assessing the grazing capacity of rangelands in about 1908. This was called the Ocular Reconnaissance Method. This method was not a range condition assessment procedure. Instead, it was intended to determine the number of livestock that could be sustainably grazed on a given area based on the cover and species of vegetation existing on the ground at the time the inventory was made.

The Ocular Reconnaissance Method was initially employed to assess rangelands on all lands in the Western United States as the Interagency Range Survey process began in the 1930s. Results of this method formed the

basis for Senate Document 199 that described the status of the western rangelands in 1935.[2] In this document, rangelands were assigned to "depletion" classes that corresponded to estimated reductions in grazing capacity for livestock. However, this method did not assess range condition.

B. The Federal Land Management Agencies Subsequently Developed the Concept of Range Condition but Applied Different Methods to Determine Condition Which Made it Difficult to Assess Overall Condition and Trend of Condition Upon the Public Land.

In the late 1940s and early 1950s, the USFS and SCS began to classify and map range condition based on the concept of similarity of current vegetation to the potential or climax vegetation. The basic ecological concept was that rangelands with similar site potential (soils, climate, landform) would produce a predictable kind and amount of native vegetation in the absence of human-caused disturbances such as grazing or fire. Evaluating the kind and amount of vegetation present on a particular type of rangeland compared to the "undisturbed" situation could be used as an indicator of rangeland "condition" and the changes in vegetation toward or away from the reference condition could measure "trend" in condition.

The methods used by the USFS and SCS, as well as the methods later used by the Bureau of Land Management (BLM), to determine range condition were not the

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[2] See U.S. Congress, Senate, "The Western Range," *Senate Document No. 199* (1936).

same, although they were based on similar ecological concepts. Because of these differences, precise comparison of range condition information across land ownerships was difficult.

Attempts to produce summaries of range condition and trend for all rangelands faced certain difficulties, including other difficulties associated with Federally administered rangelands. Most of the range condition data were collected for purposes of on-the-ground management plans. The assessments were thereby concentrated on those grazing allotments, and those portions of grazing allotments, which were considered most in need of livestock reductions, range improvements, or management changes. Large areas of rangeland, especially in rugged mountain country, were excluded from these surveys because of the time required and the fact that they were minimally impacted by livestock grazing due to lack of water, steep terrain, or other natural barriers. Therefore, the data available on range condition do not include all lands included within grazing allotments, but tend to focus on the upland portions mainly used by livestock. Likewise, range condition surveys have not been done on Federally administered rangelands not used by livestock, such as certain USFS and BLM administered lands, as well as those administered by the National Park Service, the Fish and Wildlife Service, the Department of Defense, and others.

C. The Academic Community, Other Organizations, and the Federal Land Management Agencies Compiled the Available Range Condition Information and Found an Improving Trend Upon the Public Land.

Although certain factors made it difficult to compile precise quantitative information on range condition and trend, a number of efforts have been made to do so.

One of the first efforts to summarize range condition by someone other than the Federal Land Management Agencies was done by Drs. Thad Box, Don Dwyer, and Fred Wagner (all of Utah State University) in 1976.[3] This study was the basis for the oft-quoted statement by Dr. Box that "rangelands are in the best condition they have been in this century"; a view that is supported by the vast majority of range professionals.

The report "Grazing on Public Land" issued by the Council for Agricultural Science and Technology[4] agreed with Dr. Box, and stated that, with some exceptions, rangelands are in the best condition of this century. The exceptions cited were irrelevant to livestock grazing and related to changes over the last decade due to a lack of juniper and sagebrush control. In other words, unless controlled with management practices, juniper and/or

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[3] See Thad W. Box, Don D. Dwyer, and Fred H. Wagner, "Condition of the Western Rangelands," *Unpublished report* (1976).

[4] See Council for Agricultural Science and Technology, "Grazing on Public Lands," *Task Force Report No. 129* (1996) at p. 33.

sagebrush normally thickens and results in lower range condition ratings on both grazed and ungrazed areas.

The Society of Range Management (SRM) published its own study of range condition and trend of condition that summarized the then current information available from the USFS, BLM, and SCS.[5] Members of these Federal Land Management Agencies worked with other range professionals associated with SRM to interpret the existing data and to present them in terms as nearly similar as possible in light of the differences in methodology used. The results are summarized in Tables 1 and 2.

Table 1. Range Condition in the Western United States by Land Administration (% of Land by Condition Class).

Land Owner (Reporting Agency)	Range Condition Class PNC[6]	High Seral	Mid Seral	Low Seral	Not Classed
National Forest (USFS)	15%	31%	39%	15%	<1%
Public Domain (BLM)	4%	30%	41%	18%	7%
Private/State/ Indian (SCS)	4%	30%	45%	16%	5%

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[5] See Society for Range Management, "Assessment of Rangeland Condition and Trend of the United States 1989," *Society for Range Management* (1989).

[6] Potential Natural Community.

Table 2. Estimated Trend in Range Condition in Western United States by Land Administration (% of area).

Land Owner (Reporting Agency)	Trend Up	Stable	Down	Undetermined
National Forest (USFS)	43%	43%	14%	–
Public Domain (BLM)	15%	64%	14%	6%
Private/State/ Indian (SCS)	16%	70%	14%	–

Table 1 demonstrates that the current percentages of rangeland in Potential Natural Community (PNC), high seral, mid seral, and low seral are remarkably similar among the three categories of rangeland. Likewise, Table 2 shows that estimated trends in seral stage are similar. Some of the differences in both seral stage and trend among the three categories of land may reflect differences in predominant type of land, differences in assessment procedures, differences in duration and/or intensity of management applied, and differences in effects of factors other than livestock grazing, e.g., increase in tree cover that reduces understory vegetation.

The BLM issued its own report in 1990 about the range condition and trend of rangelands upon the public land it administers.[7] The results are summarized in Table 3.

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[7] See Bureau of Land Management, "State of the Public Rangelands 1990," *Bureau of Land Management* (1990).

Table 3. Historical Trend of Range Condition on Public Land Administered by the BLM.

Year	Percent by Condition Class PNC	High Seral	Mid Seral	Low Seral	Unclassed
1936	1.5	14.3	47.9	36.3	
1966	2.2	16.7	51.6	29.5	
1975	2.0	15.0	50.0	33.0	
1984	5.0	31.0	42.0	18.0	4.0
1989	3.0	30.0	36.0	16.0	14.0

Table 3 demonstrates a general improvement in the range condition of the rangelands compared to the earliest data available. In particular, there has been a decrease in early seral condition and an increase in late seral condition.

Not everyone agrees with the information in Tables 1-3. An opinion poll of USFS and BLM field personnel by the General Accounting Office (GAO)[8] indicated that they believed range condition has declined or failed to improve because of livestock grazing. However, this GAO report was based only on opinions expressed in a questionnaire and was contrary to the quantitative information disclosed in Table 3.[9] Furthermore, in a survey of SRM members sponsored by SRM, the Range Education Institute, and the University of Nevada, the majority

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[8] See General Accounting Office, "More Emphasis Needed on Declining and Overstocked Grazing Allotments" (1988).

[9] See John L. McLain, "A Technical Review of U.S. General Accounting Office Rangeland Management and Public Rangelands Reports, 1988-1990," *Report to Congress prepared by Resource Concepts, Inc., Carson City, Nevada* (1992) at pp. 3-7.

agreed with the statement that "In general, rangelands within my SRM section have improved since the 1970s." They also agreed that the "extent of overgrazing on federal rangelands has decreased markedly over the past 50 years."

III. RANGE CONDITION UPON RIPARIAN AREAS OF THE PUBLIC LAND WITHIN THE WESTERN UNITED STATES HAS ALSO IMPROVED OVER TIME IN THE FACE OF LIVESTOCK GRAZING.

Tables 1-3 herein did not explicitly address range condition in riparian areas, i.e., the green area immediately adjacent to streams. Although floodplains along riparian areas would be included in most range condition assessments, the actual streambank vegetation likely would not be. Even if riparian condition were part of the reported information on range condition classes, the relative acreage of riparian areas compared to acreage of uplands would obscure any indication of riparian condition. Further, there was no commonly accepted method of evaluating riparian condition until the "proper functioning condition" scorecard method was recently developed by the BLM.[10] Although this method is now widely used by various Federal Land Management Agencies, it does not provide quantitative information. Therefore, probably the best way to infer the historical condition of riparian areas in the absence of more quantitative assessment

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[10] See U.S.D.I. Bureau of Land Management, "Riparian Area Management – Process for Assessing Proper Functioning Condition," *BLM Technical Reference 1737-9* (1993).

techniques is to use photographs, including aerial photos, taken at different times.

A. Some Reports Suggest Inconclusive Answers Regarding Riparian Conditions Upon the Public Land.

A 1988 GAO report[11] indicated that although some progress was being made, riparian condition was poor and would be slow to recover. However, this GAO report was not based on extensive surveys of riparian areas, but rather on anecdotal evidence from interviews.[12] Therefore, no data were presented to indicate the extent of riparian areas in different conditions, the cause of deteriorated conditions, or whether improvement was occurring.

A 1990 Environmental Protection Agency (EPA) report[13] expressed similar results to that of the 1988 GAO report. It found that "extensive field observations in the late 1980's suggest that riparian areas throughout much of the West were in the worst condition in history", and

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[11] See General Accounting Office, "Some Riparian Areas Restored but Widespread Improvement Will Be Slow" (1988).

[12] See John L. McLain, "A Technical Review of U.S. General Accounting Office Rangeland Management and Public Rangelands Reports, 1988-1990," *Report to Congress prepared by Resource Concepts, Inc., Carson City, Nevada* (1992) at pp. 3-7.

[13] See Ed Chaney, Wayne Elmore and William S. Platts, "Livestock grazing on Western riparian areas," Environmental Protection Agency (1990) at p. 5.

implies this condition is due to livestock grazing. However, this EPA report presents no information to back up this statement and no published literature or reports are cited to substantiate this claim.

A 1991 BLM report[14] expressed a more documented account of the riparian conditions, but its scope was limited. It found that 7% of public land riparian areas outside of Alaska were meeting objectives, 8% were not, and the condition of 85% was unknown.

B. A Report by BLM and Other Information Demonstrate an Improving Trend in Riparian Condition Upon the Public Land.

The Department of Interior reported in a Draft Environmental Impact Statement (EIS)[15] that in 1993 only 20% of BLM riparian areas were "nonfunctioning" with the remainder "functioning" or "functioning at risk". This same report noted that 78% of USFS riparian areas were "meeting objectives" and only 22% were "not meeting objectives". These estimates were based on some available information and on professional opinion.

Other information demonstrates a more favorable trend than that revealed by the Department in its Draft EIS, as follows:

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[14] See Bureau of Land Management, "BLM Riparian-Wetland Initiative for the 1990s" (1991).

[15] See Bureau of Land Management and U.S. Forest Service, "Rangeland Reform '94 – Draft Environmental Impact Statement" (1994).

(1) Livestock Grazing Management and Range Improvement Practices Have Changed Over Time Resulting in Improved Riparian Condition.

Several facts indicate that the impact of livestock and feral grazing animals on riparian areas would generally be less now than at any time since the turn of the century. The numbers of livestock grazing on western rangelands have been reduced, especially the number of sheep. Numbers of wild horses and burros have also decreased dramatically since the early 1900s. These trends are countered somewhat by increases in deer, antelope, and especially in elk numbers. Furthermore, the grazing demand upon the riparian areas have generally decreased due to widespread construction of fences and off-stream water developments that have resulted in better control of livestock distribution and rotational grazing systems. These developments have lessened the dependency of livestock on riparian areas for water, have provided water sources away from streams and springs, and have allowed the timing of grazing in riparian areas to improve. Therefore, these facts would indicate that the impacts of livestock and feral animals on riparian areas must certainly be less than it was in the early years of this century when few, if any, of these controls or developments existed.

(2) Causes for Riparian Decline are Often Unrelated to Livestock Grazing.

Many of the negative reports on effects of livestock grazing on riparian areas fail to separate effects of livestock grazing from other factors causing riparian damage.

They also fail to distinguish between effects of former grazing practices and effects of present grazing management.

One of the major ways in which riparian systems degrade is by development of gullies or arroyos. Such gullying has occurred over wide areas of the western rangelands since the late 1800s. Development of these gullies entrenches the streams, lowers the water table, dries up the floodplains, and contributes large amounts of sediment downstream. The beginning of gully formation was roughly coincident with Anglo-American settlement, and thus has widely been blamed on overgrazing, logging, and other human activities. However, there is no agreement on the specific causes of this gully cutting.

Cooke and Reeves[16] did an excellent analysis of the possible causes for arroyo formation in the Southwest. These possible causes included

> changes in the amount and kind of vegetation on both the watersheds and the floodplains as a result of heavy grazing, cutting of firewood and timber, fire frequency and climatic change;
>
> changes in weather patterns and/or extreme weather events that changed runoff regimes; and,
>
> direct human intervention in the channels and floodplains, including cultivation, dams to impound or divert water, road and railroad

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[16] See Ronald U. Cooke and Richard W. Reeves, *Arroyos and Environmental Change in the American South-West* (1976) at pp. 97-99.

> embankments and bridges, sand and gravel operations, etc.

Their conclusions were that heavy grazing may have had a role in formation of arroyos, but that the most likely main cause in the larger stream channels related to direct human intervention, particularly building of dams in the channels and embankments in the floodplains. There are also indications of extreme drought followed by exceptional runoff events during the main time of arroyo initiation.

The point is that once gullies are initiated, for whatever reason, the process may continue for many years. Headcuts of gullies will continue to move upstream or discontinuous gullies will coalesce in response to concentration of runoff, regardless of the condition of the watershed above them. Gullies will also tend to widen by eroding their banks to create new floodplains at a lower level than the previous one. Only when a new floodplain is wide enough to accommodate flood events and dissipate flood energy will it start to trap sediment and aggrade, perhaps eventually reaching the former floodplain level and establishing new riparian vegetation corridors. This process may take a long time. Thus, many gullies initiated in the late 1800s or early 1900s are still in the process of re-stabilizing.

Grazing and human activities can also affect bank stability, habitat for wildlife (vegetation), and water quality. However, research and adaptive management experience over the past couple of decades have shown that these problems can be overcome by designing livestock grazing management systems to achieve these objectives.

Riparian objectives can usually be met by modifying livestock grazing practices without complete removal of livestock.

(3) Experience of Range Professionals and Other Professional Resource Managers Demonstrate an Improving Trend in Riparian Condition Upon the Public Land.

Photographic evidence and the experience of professional resource managers indicate that there has been marked improvement in the condition of riparian areas since the 1950s, and especially in the past 20 years when more attention has been focused on managing riparian areas.

In southeastern Arizona, Hastings and Turner[17] retook photographs taken in the late 1800s and early 1900s. Of the 28 matched photographs of riparian locations, 25 showed obvious increases of riparian vegetation including cottonwoods and willows.

In Wyoming, in 1977-80, Kendall Johnson[18] re-took the photographs taken by William Henry Jackson throughout the state in 1869-70. Of 20 riparian areas rephotographed by Johnson, 13 showed marked increases in woody species, mainly cottonwoods and willows. Six riparian areas appeared to have about the same amount

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[17] See J.R. Hastings and R. M. Turner, *The Changing Mile – An Ecological Study of Vegetation Change with Time in the Lower Mile of an Arid and Semiarid Region* (1965).

[18] See Kendall L. Johnson, "Rangeland Through Time – A Photographic Study of Vegetation Changes in Wyoming," *University of Wyoming Misc. Pub. 50* (1987).

of woody species along the banks in both sets of photographs and one area, an area dredged for gold, had less woody vegetation in 1977-80.

In the Northern Great Plains in 1958-1960, Phillips[19] re-took the vegetation photographs originally taken by Dr. Homer L. Schantz starting in 1908. Of the 11 photographs of riparian areas in Wyoming, Montana, South Dakota, North Dakota, and Nebraska, 9 showed a definite increase in woody species along the stream bank and 2 showed little differences.

David E. Brown, one of the authors of the Map and Classification System for Arizona Vegetation[20], and a field biologist with over 30 years experience in the Southwest with Arizona Game and Fish Department, wrote:

> "My experience, from some 30 years as a field biologist in the Southwest, is that riparian vegetation has improved immensely since the 1960s and early 1970s. Entire forests of cottonwood and willows have sprung up where previously I saw only barren strands of gravel. . . . Streams that formerly sank into cow-stomped sand now gurgle downward another 100 yards or more. Where earlier I saw the ravages of erosion and channel-cutting, I now see sediment rebuilding and healing banks. . . . These observations are not some trick of memory. Recent photos of

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[19] See Walter S. Phillips, "Vegetational Changes in the Northern Great Plains," *University of Arizona Agricultural Experiment Station Report 214* (1963).

[20] See D.E. Brown and C.H. Lowe, "Biotic Communities of the Southwest," *U.S.D.A. Forest Service Gen. Tech. Rept. RM-78* (1980).

Southwestern streamsides commonly show a marked thickening of gallery forests when compared to earlier photographs. . . . Why? Cattle, the bugaboo inhibiting reproduction by cottonwoods and willows, are fewer now at streamside as some ranchers try more enlightened management practices. . . . (Many) streams have been acquired by conservation organizations that protect them from grazing. The change in some of these communities can only be termed remarkable, and attests more to riparian resilience than frailty. . . . But the foremost factor has been climatic serendipity. Riparian forests are successional by evolutionary design and dynamic by nature. Comparatively short-lived and adapted to spring flooding, riparian trees were greatly handicapped by the dry winters that characterized the middle of the 20th century. Conversely, these relicts of the pre-Ice-Age world were uniquely positioned to take advantage of the bountiful runoffs that came in the springs of 1968, 1979-81, 1983, and 1993. So great was the production of seedlings after these events that only the most intense cattle predation could negate the gains. Had it not been for the catastrophic summer floods that occurred in 1970, 1983, and locally in other years, our riparian forest would have attained even greater grandeur."[21]

Mr. Brown's observations are quoted at length because his conclusions reflect those of most range professionals working in the same area and he certainly cannot be considered an apologist for livestock grazing.

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[21] See David E. Brown, "We need to avoid riparian hysteria," *High Country News* (October 2, 1995).

Neither the observations of Mr. Brown nor those of range professionals deny the extensive negative impacts of livestock grazing on riparian areas in the past nor do they deny that such impacts do continue today in places. However, as Mr. Brown points out, riparian degradation and recovery is highly influenced by weather, especially drought and floods, and that such influences can overshadow the effects of both good and poor management of livestock grazing.

IV. A CHANGE IN RANGE CONDITION UPON THE PUBLIC LAND WITHIN THE WESTERN UNITED STATES MAY BE UNRELATED TO LIVESTOCK GRAZING AND A LOWER RANGE CONDITION MAY BE MORE BENEFICIAL FOR OTHER USES.

Interpretation of the meaning of Tables 1-3 herein, as well as the riparian condition information herein, requires some understanding of how the condition ratings are made and why ratings may or may not improve over time. In general, range condition compares the similarity of current vegetation to the presumed climax or potential vegetation for the site. Vegetation is described by species composition and sometimes by cover. The potential vegetation is obviously influenced by site variables such as soil, precipitation, temperature, and topography. For example, one obviously does not expect the same type of vegetation or same level of productivity in the Arizona desert as in the Colorado Mountains. Similarly, substantial differences can even occur within one management unit due to differences in soil or topography. If these differences are not adequately accounted for, the vegetation on a particular area may be judged to be

below potential because, in fact, it does not have the capability to be any better.

A. Livestock Grazing, Fire, and Other Factors May Influence the Range Condition Upon the Public Land.

The standards for different range sites (types of rangeland with similar soils and climate) are often developed by studying areas that have not been grazed or burned, at least for a long time. Since grazing and burning do affect the composition, the standard established may not be attainable under grazing or burning. In other cases, vegetation may have changed from the "original" composition due to woody plants or annuals that were absent or less abundant in earlier times. Whether these changes were solely the result of heavy grazing in the past, or caused by interactions with other factors, the changes may be practically irreversible by grazing management alone. In other words, reducing grazing, or even eliminating it, will not change some of these rangelands perceptibly. Therefore, some areas may remain in condition classes of late seral, mid seral, or even early seral.

B. Pristine Range Condition is Not Always Preferred Upon the Public Land.

Potential Natural Community or late seral condition is not always the most desirable state for all uses of the public land. Rangelands classified at a level lower than

pristine may be desirable from the standpoint of ecological function and sustainability. For example, some rangelands classified as mid seral condition may be ecologically satisfactory but may not produce the kinds of vegetation necessary to achieve Land Use Plan objectives. However, these rangelands may have stable soils as well as biological productivity and diversity equal to or exceeding that of rangelands in higher condition classes. Related thereto, many species of wildlife thrive best in mid seral or late seral condition because the plants characteristic of those classes may provide more cover or food for them. Examples include the following:

> Heavy sagebrush areas that are critical mule deer winter range.
>
> Abundant numbers of pronghorn antelope in Wyoming thrive on mid seral condition rangelands because that condition has an abundance of shrubs and forbs required by this species.
>
> Killdeer and other shore birds require bare areas within riparian areas for their breeding success.

Therefore, it is practically impossible to draw conclusions about desired uses and ecological goals simply from range condition information.

C. Pristine Range Condition Should Not be Expected on All the Public Land. Instead, the Achievement of Land Use Plan Objectives Within the Range Condition Potential of a Given Area of Public Land Should be Expected on All the Public Land.

There is no necessary reason to expect that all rangelands should be in pristine or late seral condition or that it is even possible. There is no basis for concluding that mid seral condition is unsatisfactory. The basic problem is that terms like satisfactory and unsatisfactory reflect value judgments, not ecological function or sustainability. The "Range Health" publication of the National Research Council[22] recognized this and concluded that the "health" of the rangeland is not known. The SRM also recognized this problem and recommended that the value laden terms (satisfactory, unsatisfactory) be dropped and that the desired conditions be identified as the "Desired Plant Community" for a given land type (ecological site)[23]. In this case, the desired vegetation is that which will accomplish Land Use Plan objectives within the ecological site potential of the area.

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[22] See Committee on Rangeland Classification, "Rangeland Health – New Methods to Classify, Inventory, and Monitor Rangelands," *National Research Council* (1994) at p. 27.

[23] See Task Group on Unity in Concepts and Terminology, "New Concepts for Assessment of Rangeland Condition," *Journal of Range Management 48* (1995) at p. 275.

CONCLUSION

ARC contends that the preponderance of evidence shows that the riparian and upland condition of the public land within the Western United States has improved over the past several decades and would continue to improve in the absence of the regulations promulgated by the Department of Interior. This improvement is due to better livestock management, in some cases to exclusion of livestock, to elimination of roads or better road construction, to more favorable weather conditions, and to maturation of the process of gully entrenchment and healing. Therefore, great progress has been made on both the upland and riparian condition of the public land in the Western United States and there is nothing to suggest that it will not continue to be made in the future.

ARC contends that recent publications that paint negative pictures of livestock grazing effects on all rangelands and the situation of riparian areas do not provide an accurate view of the actual situation.[24] Pieper[25] summarized the general effects of herbivory on rangelands as follows:

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[24] See A.J. Belsky, A. Matzke, and S. Uselman, "Survey of Livestock Influences on Stream and Riparian Ecosystems in the Western United States," *J. Soil and Water Conservation* 54:419-431 (1999) at p. 419. See also Robert D. Ohmart, "Historical and Present Impacts of Livestock Grazing on Fish and Wildlife Resources in Western Riparian Habitats," *Rangeland Wildlife* (1996) at p. 268 and elsewhere.

[25] See Rex D. Pieper, "Ecological Implications of Livestock Grazing," *Ecological Implications of Herbivory in the West* (1994) at p. 202.

> "Herbivory is a natural ecosystem process universal to rangelands worldwide. Although livestock are not native to western rangelands, these herbivores function similarly to native herbivores: livestock harvest plants, defecate, urinate and are involved in nutrient cycles; livestock compete with and complement other herbivores in rangeland ecosystems; livestock may stimulate primary production or depress it; livestock may serve as prey for several kinds of predators . . . All of these processes operate within rangeland ecosystems, and often result in some type of equilibrium, however temporary, among the different components."

In this context, ARC contends that livestock grazing on public land of the Western United States is not only a natural process, but one which contributes to the proper functioning of rangeland ecosystems when done in accordance with scientifically based principles. The credible evidence available and ARC's collective professional experience indicate that condition of both upland and riparian rangelands has improved over the past several decades and is continuing to improve as a result of improved livestock grazing management in the absence of the contested regulations promulgated by the Department of Interior in 1995. It is for this reason that ARC urges reversal.

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